Hall, Thomas.

ILLUSTRATED CATALOGUE

OF

ELECTRO-MEDICAL INSTRUMENTS,

MANUFACTURED AND SOLD

BY

THOMAS HALL,

(SUCCESSOR TO PALMER & HALL,)

ELECTRICIAN,

MANUFACTURER AND IMPORTER OF

MAGNETIC GALVANIC,

AND

TELEGRAPHIC INSTRUMENTS.

BOSTON, MASS.
No. 158 WASHINGTON STREET.
1859.

WRIGHT & POTTER, Printers, No. 4 Spring Lane.

HALL'S

IMPROVED

Compound Magnetic Instrument,

PRODUCING A CONSTANT CURRENT,

FOR RHEUMATIC AND NERVOUS DISEASES.

AN APPLICATION FOR A PATENT HAS BEEN MADE.

In offering this Instrument to the public we would call their attention to the following advantages over all others now in use:

This Instrument is arranged with a Pole Changer, so that you can determine which is the positive or negative pole, (the negative pole being the strongest,) which is very essential to know in applying it for diseases. The Coils revolve without belt or band, so that it cannot get out of order. Having a Magnet at each end of the Coils, we get a very powerful current, which can be controlled by the U armature. Shocks can be obtained by turning the crank either way. The changing of the positive or negative pole in the conductors, depends upon the direction in which the crank is turned. This Instrument is thoroughly made, and warranted to keep in order for years, if carefully used.

DIRECTIONS.

Connect the Conducting Wires with the Sockets at the end of the Box; screw the Crank on the Wheel-shaft and turn slowly, as the current depends upon the velocity with which the Coils revolve; the greater the speed, the more powerful the shocks will be received. By putting a piece of wet sponge in the ends of the Conductors, the shock will be more pleasant, as the sponge spreads upon a larger surface of the skin, and obviates that pricking sensation which is so unpleasant. In applying it, hold the Conductor in one hand, and apply the other to the part affected.

☞ *To produce a constant current, pull the knob at the end of the Box.*

Manufactured and sold, Wholesale and Retail, by

PALMER & HALL, 158 Washington Street,

BOSTON, MASS.

Magnetic and Galvanic Apparatus made to order, and constantly on hand. Also, Conductors of every description. Dr. Channing's Medical Electricity, published by PALMER & HALL; price 75 cents. Davis's Manual of Magnetism, $1.25.

REFERENCES.

The instruments represented in this catalogue can be sent to any part of the world perfectly safe, with cost of box and packing added to bill.

The following are a few of the testimonials we have received from physicians and dentists who are now using our improved instruments.

MR. HALL. — This may certify that I have used your improved Helix and Patent Silver Battery most thoroughly for some time past, alternating the work with several others which are in daily use in my office, and am happy to say that I give a decided preference to this most beautiful and effectual new machine, for the particular cases and purposes to which it is adapted, over any or all others that I have ever used or seen used in this country or in Europe.

Yours respectfully,

ALFRED C. GARRATT.

7 *Hamilton Place*, BOSTON, June 25, 1859.

BOSTON, September, 1858.

MESSRS. PALMER & HALL. — Gentlemen: We have used one of your Improved Helix for the past three months, and we find it works admirably. The battery has been in constant action since we first set it up, without any perceptible change. The instrument runs very smooth and still, which is a great advantage for applying it for the extraction of teeth.

We cordially recommend the instruments manufactured by you to be of superior workmanship and better adapted for dentist and and physicians' use, than any other instruments we have seen.

DR. H. I. DANIELS,
DR. WM. D. BROWN, *Surgeon Dentists*,
No. 17 Bedford Street.

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1865, Mar 5.
Gift of
Saml A. Green M.D.
(M. C. 1851.)

PREFACE TO CATALOGUE.

THE manufacturing of Magnetic and Galvanic Instruments was first commenced in this country by Mr. Daniel Davis, Jr., in the year 1836. Previous to that time, all the Galvanic Instruments used in this country were imported from Europe. Mr. Davis, having had an old induction coil to repair, saw the principle upon which it acted, and made one for amusement, with some improvement upon the one he repaired. He found a ready sale for it. This induced him to engage in the manufacture of them. At that time they were very rough and inconvenient instruments, compared with those we now make. They were very seldom used for medical purposes. The mode of breaking the current was by means of a ratchet placed on the top or by the side of the coil. This was a great objection to them for medical purposes, as the shocks came very irregularly; this was remedied by the invention and adoption of the vibrating armatures in connection with the secondary coils contrived by Mr. Davis. It is now universally used for this purpose both in this country and Europe. By this ingenious arrangement the instruments are self-operating, and the current is extremely fine. Making induction coils led to making models for motive power, and various pieces of apparatus to illustrate galvanism and electro-magnetism. The adoption of this branch of physical science in our colleges and schools created a constant demand for this class of instruments, so that we now manufacture over five hundred distinct instruments adapted to this branch of studies.

For several years they were used only for illustrating the principles of galvanism, &c., there not being any practical use for them except being occasionally used for medical purposes. Like most new theories in medical science, this agent was extremely slow in coming into use among the medical profession. One of the greatest obstacles in the way of this agent was, that there were no books on this subject whereby a physician could inform himself how to apply electricity to various diseases. This defect is remedied now to a great extent; there are some very valuable works on medical electricity, by some of the first physicians in Europe and America. Among the most prominent stand the names of Golding Bird, of England, M. Duchenne and M. Becquerel, of France, Middeldorpf, of Germany, and Dr. W. F. Channing, of this city. This last gentleman has paid especial attention to electricity as a therapeutic agent, having constructed and devised a great many new and useful instruments in this department. We are greatly indebted to him for his suggestions and advice in the construction of the various instruments described in the following catalogue. Many of them, and the manner of applying them, are original with him.

Having been engaged with Mr. Davis in the manufacture of these instruments from 1840 until his retirement from business in 1849, and subsequently successor to him in the firm of Palmer & Hall, until 1857; having had eighteen years' experience, and possessing great facilities and conveniences for the manufacture of instruments in this line,— it is my intention that no efforts on my part shall be wanting to sustain the previous high reputation of these instruments, or to render them unsurpassed by those of any other maker.

THOMAS HALL.

HALL'S CATALOGUE.

Persons ordering will please state the number and price of instruments.

All instruments carefully packed and warranted, with cost of box added to bill.

INSTRUMENTS.

No. 1. Single Coil Instrument, in black walnut box, with draw to contain directors, wire, &c., large size, de-

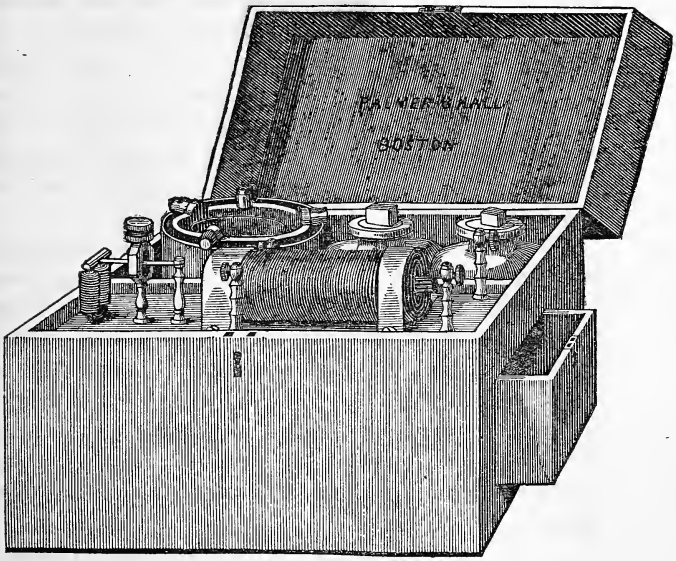


Fig. 1.

signed for physicians' use, containing ground stopple bottles for solutions. This instrument is thoroughly made, and beautifully finished. Price, $20.00.

No. 2. Double Coil Instrument, same size as Fig. 1, with the addition of a quantity coil and graduated battery. Price, $25.00.

No. 3. Same size as Fig. 1, silver plated. Price, $25.

No. 4. Double Coil Instrument, silver plated. $30.00.

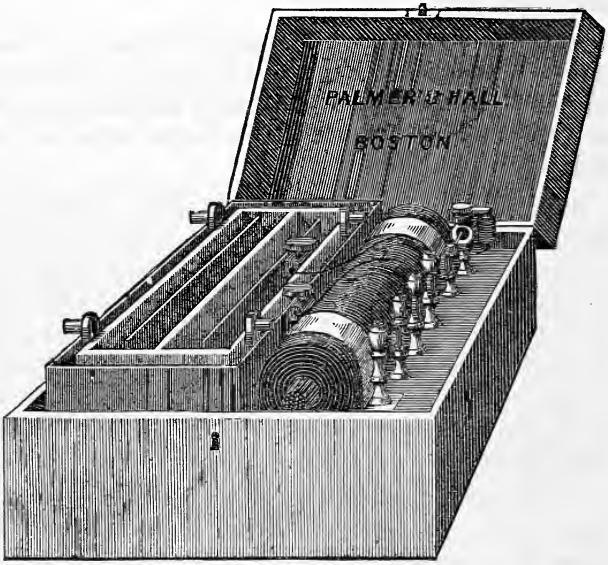


Fig. 5.

No. 5. Dr. Page's Portable Battery. This is very powerful for its size. It is contained in a black walnut box, 5 inches high, 7 wide, and 9 long. It consists of coil,

5 inches long and two inches in diameter, with square battery, handles, and flexible wires. Price, $12.00.

DIRECTIONS. — 1. Connect the wires as represented in the cut.

2. The solution to be used in this battery, is one of sulphate of copper, (blue vitriol,) containing about two ounces of blue vitriol to a pint of water. To prepare it, a saturated solution is first made, and to this solution is then added as much more water.

3. The zinc plate becomes coated in the battery, so that it is necessary to clean it after using it, whenever the metal has become thickly furred. The coating should be removed each time, so as to expose again the bright surface of the zinc.

4. If the electro-magnetic apparatus will not operate, see first if any spark is perceptible on rubbing the extremities of the wires from the battery together. If not, the battery is in fault. This may be owing to a sediment of copper at the bottom of the battery, making a connection between the zinc and copper, or to the zinc being somewhere in metallic contact with the copper; or it may be owing to the foulness of the zinc plate, or to the weakness of the copper solution, which in that case will have lost its color.

5. A bundle of iron wires is shown in the cut within the inner helix. This can be removed at pleasure, and the shock thus regulated.

6. The positive pole may be determined from the negative by taking the handle-directors in the hands, the negative always being felt the most sensibly.

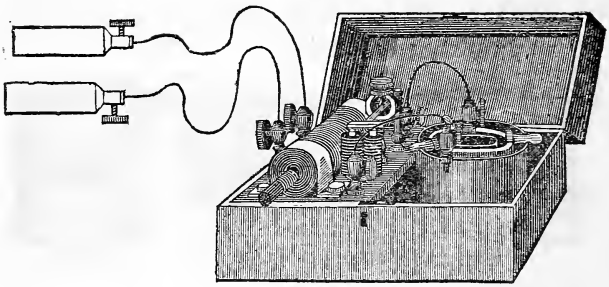


Fig. 6.

No. 6. Coil and Battery, in box, for family use. A very convenient form, including handles and wire. Price, $10.00.

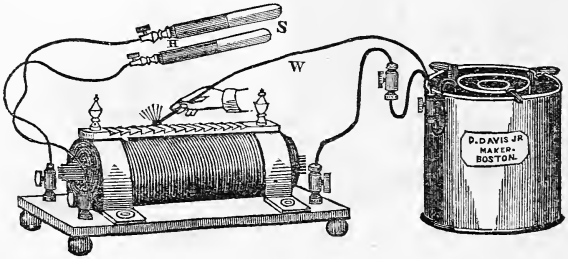


Fig. 7.

No. 7. Double Helix and Vibrating Electrotome, with battery and handles. Neatly mounted on rosewood base. Price, $8, $10, and $12.00.

No. 8. Small Coil, in neat rosewood box, with battery and handles. Price, $8.00.

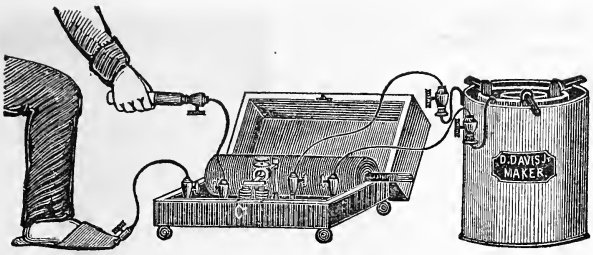


Fig. 8.

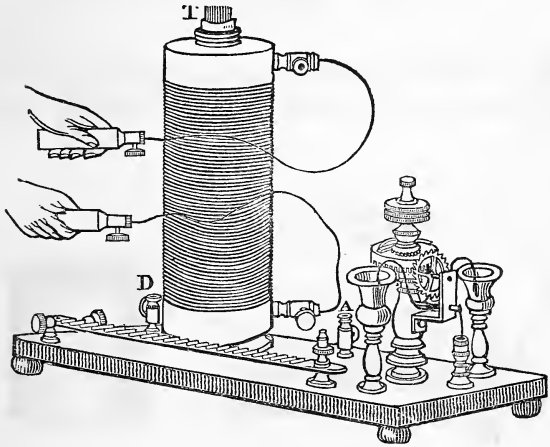


Fig. 9.

No. 9. Compound Electrotome with Clockwork. This is a very powerful instrument, and is used principally to illustrate the induction current in colleges and medical schools. Price, $20.00.

No. 10. Horizontal Compound Electrotome. This is the same as Fig. 9, with the exception of being horizontal. The current is broken by clockwork, attached to wires dip-

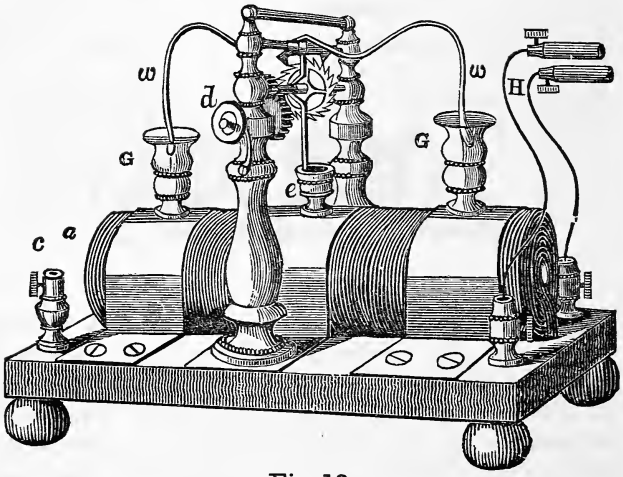


Fig. 10.

ping into mercury cups. When the battery is connected, there is a bright spark in the glass cup, sufficient to light up a small room. Price, $20.00.

No. 11. This instrument is enclosed in a black walnut box, with handles, battery, and wires. The battery is composed of zinc and platinum, and is excited with sulphuric acid. The instrument is entirely enclosed from the battery, so as to avoid all fumes and dirt arising from the battery. This battery needs no cleaning, being always ready for action. Price, $14.00.

Instruments used for the application of Galvanism in the Extraction of Teeth.

No. 12, Represents helix, with handles and wires complete. In order to operate the instrument, connect the short wires as represented in the figure. Connect the flexible wires with the cups at the end of the helix marked P and N. Attach the handle to the wire connected with the

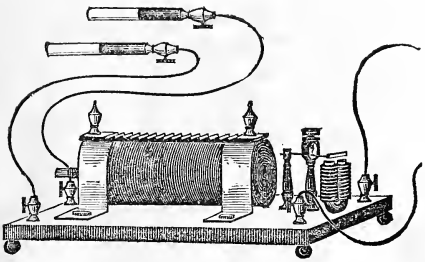


Fig. 12.

cup marked P. Attach the wire connected with the cup marked N to the forceps; this can be done by drilling a hole in the handle of the forceps, and inserting the end of the wire so as to make good connection. The current is graduated by removing the regulator from the centre of the helix. Care should be taken to insulate the gums and cheek from the forceps, so as to cause the whole current to go direct to the tooth: a slight current has been found the best to produce the desired effect.

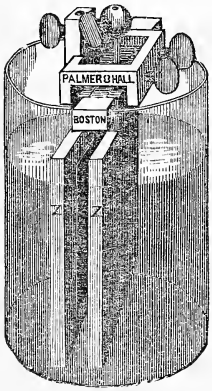


Fig. 13

No. 13, Represents the best battery for this purpose, as it is a constant battery, always ready for use, and requires little care in its management, the zinc plates not requiring any cleaning. It consists of amalgamated zinc and platinum, with sulphuric acid and water; for a solution, about one twentieth acid to water. Care should be taken to keep the zinc plates well coated with mercury, as that prevents the acid from acting on the zincs only when in use. They should be amalgamated once a month, if used constantly. To amalgamate the zincs, clean them well with a strong solution of sulphuric acid and water, then rub them in a dish of quicksilver, rubbing it on with an old tooth brush. See that the zincs are well coated with mercury, as the action of the battery depends a great deal on the amalgamation. Do not let the platinum plate touch the zincs, as that would stop the action of the battery. Disconnect the battery from the instrument when not in use.

This battery is peculiarly adapted to dentists' use, as it is always ready, day and night, and there is no cleaning of the zincs, as in the sulphate of copper batteries. It is also the battery used by dentists for gilding their plates.*

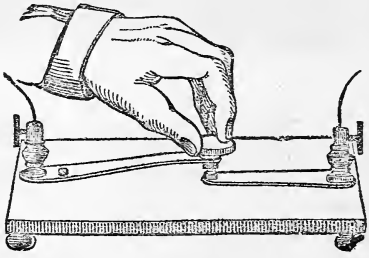


Fig. 14.

No. 14, Represents a footboard, for letting the current on the forceps by the foot or hand, a very convenient

* See Hall's Instructions for Electro-Gilding and Silvering.

method of operating, as you need no assistant. This is connected by the wire in between the instrument and the handle which the patient holds. By pressing the spring down it closes the circuit. By releasing the pressure the current is broken. By this arrangement you can let the current on at pleasure.

Dentists' set complete, including battery, helix, footboard, wires, and handles. Price, $12.00.

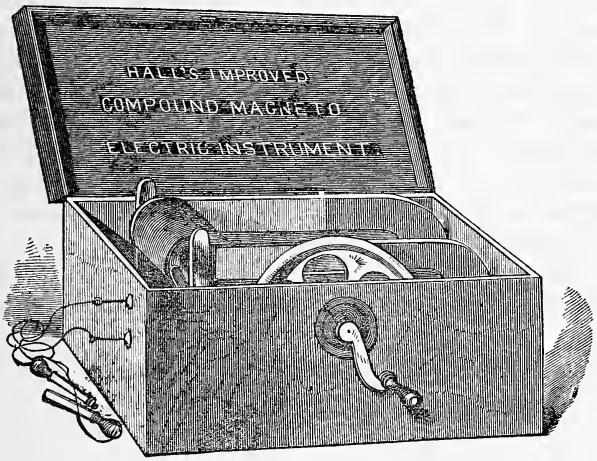


Fig. 15.

No. 15. Hall's Improved Compound Magnetic Instrument, producing a constant current. For Rheumatic and Nervous Diseases.*

In offering this instrument to the public, we would call their attention to the following advantages over all others now in use.

This instrument is arranged with a Pole Changer, so that

* An application for a patent has been made.

you can determine which is the positive or negative pole, (the negative pole being the strongest,) which is very essential to know in applying it for diseases. The coils revolve without belt or band, so that it cannot get out of order. Having a magnet at each end of the coils, we get a very powerful current, which can be controlled by the U armature. Shocks can be obtained by turning the crank either way. The changing of the positive or negative pole in the conductors depends upon the direction in which the crank is turned. This instrument is thoroughly made, and warranted to keep in order for years if carefully used. Price, $10.00.

DIRECTIONS. — Connect the conducting wires with the sockets at the end of the box, screw the crank on the wheel-shaft, and turn slowly, as the current depends upon the velocity with which coils revolve; the greater the speed, the more powerful the shocks will be received. By putting a piece of wet sponge in the ends of the conductors, the shock will be more pleasant, as the sponge spreads upon a

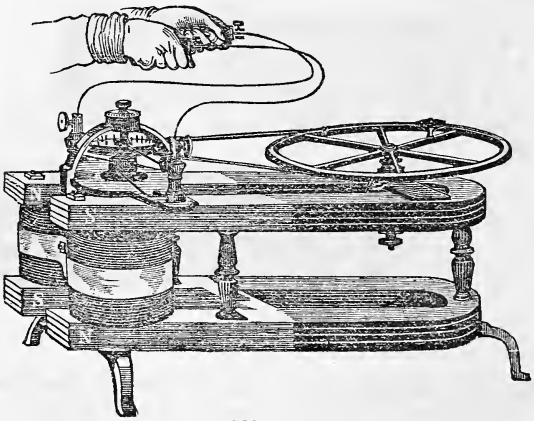


Fig. 16.

larger surface of the skin, and obviates that pricking sensation which is so unpleasant. In applying it, hold the conductor in one hand, and apply the other to the part affected. To produce a constant current, pull the lever at the end of the box.

No. 16. Large size Magneto-Electric Machine, for hospitals and institutions. The advantages that this instrument possesses over the induction coils is, that there is no battery; it is always ready; by turning the crank you produce a current. This is used very extensively in Europe, but we do not think it gives so steady a current as the instruments worked with the battery. Price, $50.00.

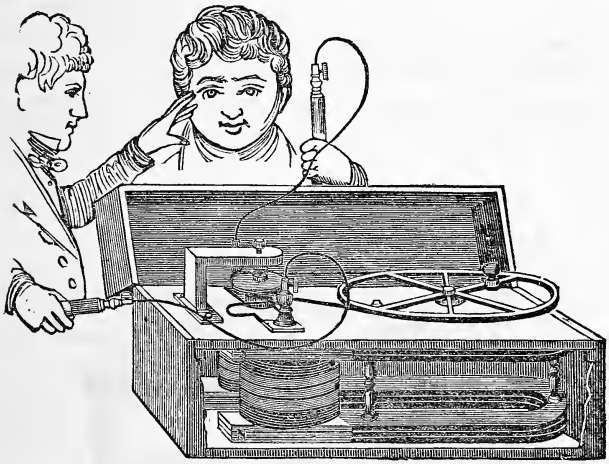


Fig. 17.

No. 17. Medium size Magneto-Electric Machine, in box, suitable for a physician's office. Price, $35.00.

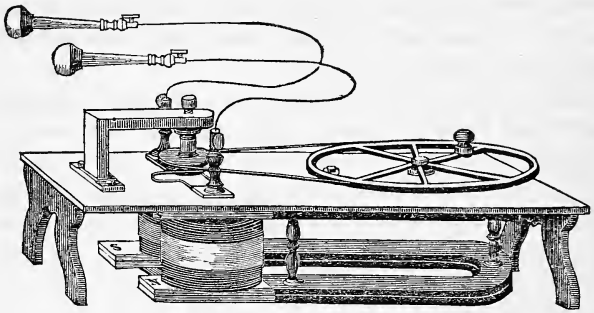


Fig. 18.

No. 18. Magneto-Electric Machine, without box, neatly mounted on rosewood base. Price, $25.00.

No. 19. Magneto-Electric Machine, with Single Magnet. This is intended for institutions. Price, $30.00.

No. 20. Largest Size, run with Clockwork, with four coils, producing quantity and intensity at the same time. Double Compound Magnets. Well made and finished. Price, $100.00.

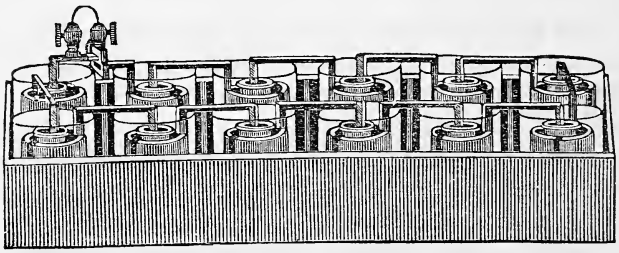


Fig. 21.

No. 21. A Series of Twelve Grove's Battery, in box. We consider this battery the best for the electro-chemical baths. It consists of amalgamated zinc and platinum,

excited with sulphuric and nitric acid. It is a very intense battery. From twelve to fifteen cups is the best number to each tub. Price, per cup, $2.00.

DIRECTIONS. — Fill the glass jars with water within one and a half inches of the top; then add one half ounce of sulphuric acid; stir it up well with a stick; set the zinc in the jar, and the earthen or porous cup in the zinc; fill the porous cup with nitric acid within one half an inch of the top; place each platinum strip in the nitric acid, or porous cup, as shown in the cut above; connect wires with each end of the battery, then touch the ends of the wires together, — if there is a spark, the battery is in good order.

Care should be taken to keep the zincs well coated with mercury, as that prevents the acid acting on the zinc only when in use. They should be amalgamated once a week if used constantly. To amalgamate the zincs, you clean them well with a strong solution of sulphuric acid and water, then rub them in a dish of quicksilver, — put it on with a brush. See that the zincs are well covered with mercury, as the action of the battery depends a great deal on the amalgamation.

This battery will work from eight to ten hours with a constant current. It is best to soak the porous cups in water after using, as it frees them from the old acid.

No. 22. A Series of Twelve Smee's Batteries, in box. Consisting of amalgamated zinc and platinum, excited with sulphuric acid. This is applied directly to the patient by means of directors. Price, $24.00.

No. 23. Hall's Improved Constant Battery, composed of copper and zinc, excited by sulphate of copper. The zinc is placed in the centre of a porous cup, filled with water. The porous cup is placed within a cylinder of sheet copper, surrounded with crystals of sulphate of copper, set within a glass jar. Fitted in boxes of ten cups each.

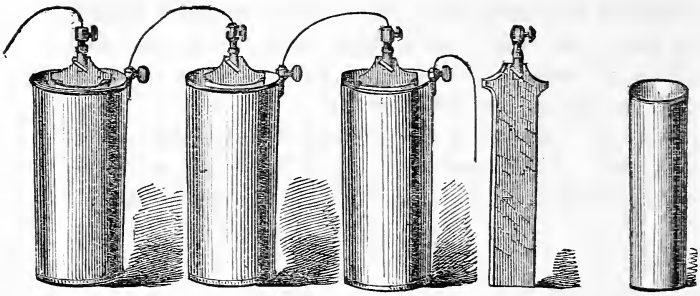


Fig. 23.

The advantage of this battery as a medical agent is very great, as it will remain in constant action from nine months to a year without replacing, except with water, to replace that which has evaporated. Price, per cup, $1.25.

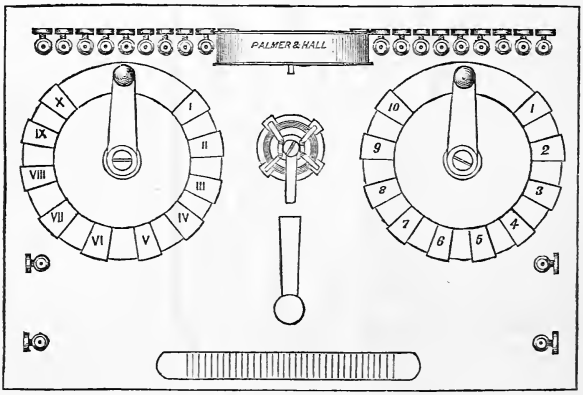


Fig. 24.

No. 24. Manipulator. This is a very ingenious instrument, contrived by Dr. William F. Channing, for bringing any number of batteries into circuit at pleasure from one to one hundred cups. It is arranged with a pole-changer, break-piece, key, and clock-work electrotome. This is a very

desirable instrument, when the constant current is used, as it places the battery in perfect control of the operator. Price, 100 cups, $50.00; 50 cups, $40.00; 30 cups, $30.00; 20 cups, $15.00; 15 cups, $10.00.

No. 25. Improved Electro-Surgical Instrument. Loop Ligature. This is arranged so as to let the current on by merely pushing the knob, after placing the loop in the right

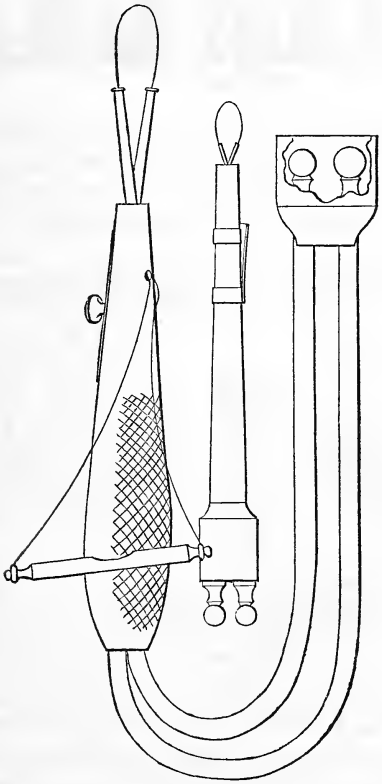


Fig. 25.

position. The battery current is produced by four cups of Bunsen's battery, composed of zinc and carbon, giving a powerful quantity current. It is let on to the instrument by means of large flexible wires. Price, $8.00.

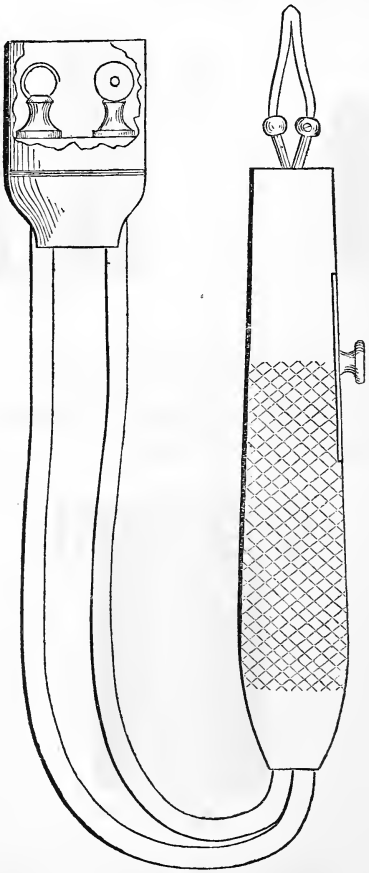


Fig. 27.

No. 26. Directors for Destroying the Nerves of Teeth, by means of red hot platina wire. Price, $3.00.

No. 27. The same as No. 25, with the exception of lancet instead loop. Price, $8.00.

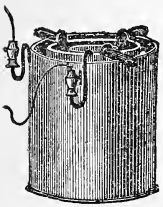


Fig. 28.

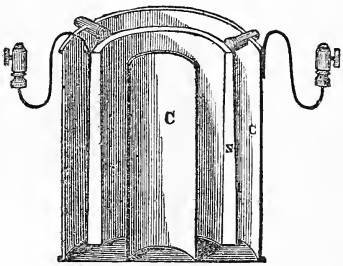


Fig. 29.

No. 28. Small Sulphate Copper Battery. Price, $2.00.

No. 29. Showing a section of Fig. 28. C C copper, Z zinc, the solution as composed of sulphate of copper, about one ounce to a pint of water.

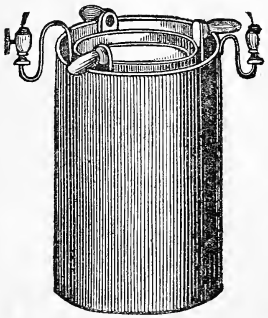


Fig. 30.

No. 30. Medium Size Sulphate Copper Battery. Price, $5.00.

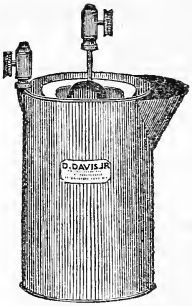


Fig. 31.

No. 31. Daniels's Protected Battery. The difference between this and Fig. 30 is, that the zinc cylinder is protected by a porous cup. By this arrangement the battery is more constant, and will remain in action for several days, but is not so powerful. Price, $2.00.

No. 32. Large Size ditto. Price, $4.00.

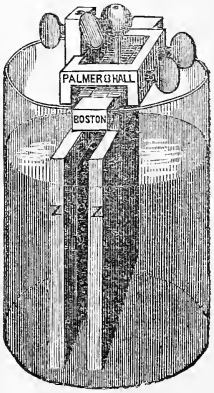


Fig. 33.

No. 33. Smee's Constant Battery. This is composed of zinc and platinized silver, sulphuric acid and water, for solution. It is very constant, and will remain in action for

several months. This for an office battery is decidedly preferable over all others, as it is less expensive to work, and less trouble. Price, 1 quart jars, $2.50; 3 quart jars, $3.50.

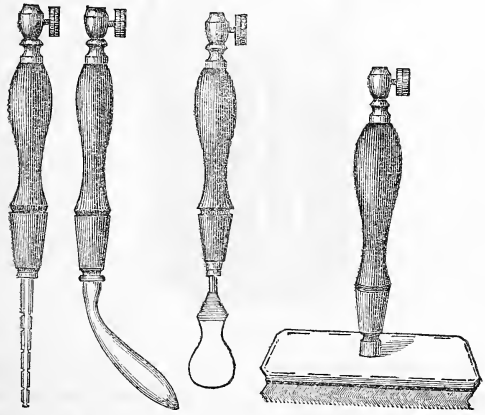
Figs. 34. 35. 36. 37.

No. 34. Directors for the Hand. German silver, with insulated handle. Price, per pair, $2.00.

No. 35. German Silver Handle. Per pair, $1.25.

No. 36. Silver Plated Surface Director, with insulated handle. Per pair, $2.00.

No. 37. Sponge Director, with glass handle. 75 cents.



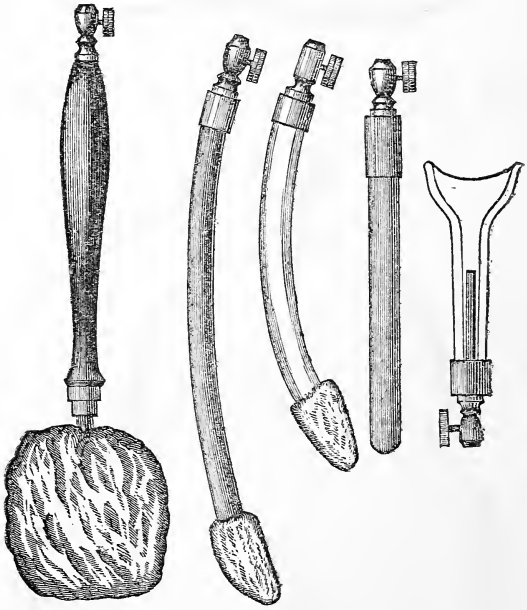
Figs. 38. 39. 40. 41.

No. 38. Ear Director, silver plated, with insulated handles. Price, 75 cents.

No. 39. Rectum ditto. 75 cents.

No. 40. Tongue ditto. 75 cents.

No. 41. Scalp ditto. $1.25.



Figs. 42. 43. 44. 45. 46.

No. 42. Flat Sponge Director, with long insulated handle. This is very convenient, as you can apply it without disrobing the patient. Price, $1.25.

No. 43. Womb Director, with insulated handle. Price, $1.25.

No. 44. Ditto, with glass handle. $1.25.

No. 45. Vagina Director, silver plated. Price, $1.25, and $1.50.

No. 46. Dr. Channing's Eye Glass. 75 cents.

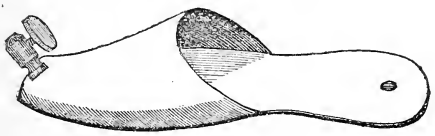


Fig. 47.

No. 47. Metallic Slipper for the Feet. $1.25 per pair.

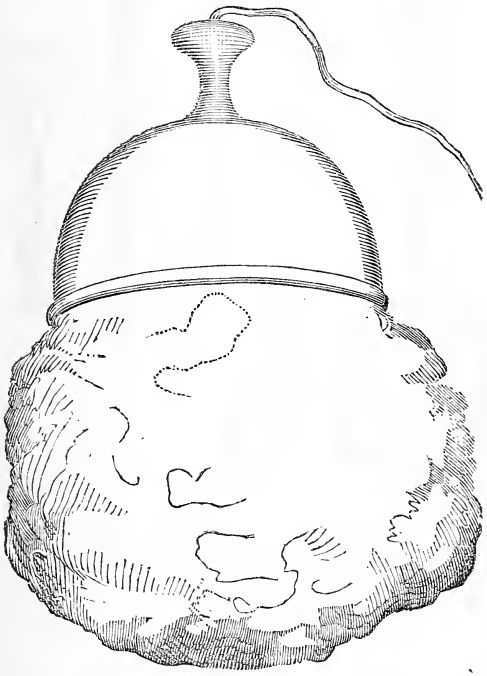


Fig. 48.

No. 48. Hall's Hard Rubber Sponge Cup. This is used by placing the hemisphere in the palm of the hand,

and letting the knob project through the fingers. The sponge is fastened in the cup by a spring. By this arrangement the sponge can be taken out of the cup and washed, which is very desirable. Price, without sponge, 75 cents; with sponge, $1.37.

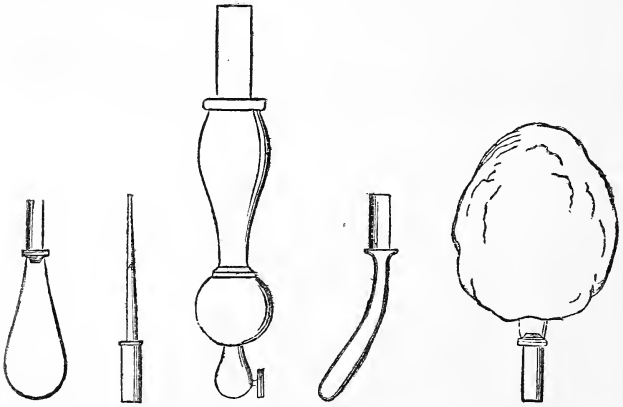


Fig. 49.

No. 49. Hall's Universal Handle, embracing the Tongue, Ear, Eye, Rectum, Sponge, Womb, and Vagina Directors. Silver plated. By this arrangement, all the directors are fitted to one handle. They can be fitted in the draw of the instrument, and take up but little room. Price, $5.00. Neatly fitted in box, $6.00.

The above directors should be covered with cotton flannel, moistened with water, when in use, as this will prevent that burning sensation so disagreeable to patients.

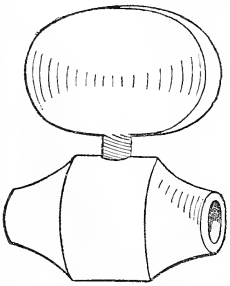


Fig. 50.

No. 50. Tie Connecting Cups, for joining two wires. Price, 25 cents.

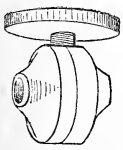


Fig. 51.

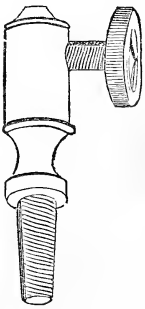


Fig. 52.

No. 51. Screw Connecting Cups. Price, 17 cents.

No. 52. Screw Cups. Price, 17 cents.

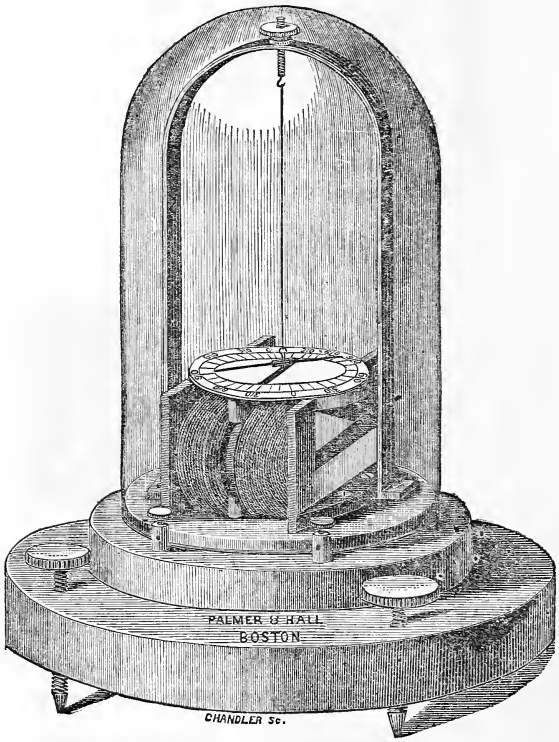


Fig. 53.

No. 53. Galvanometers, for testing various galvanic currents. Price, $10.00 to $35.00.

No. 54. Vertical Galvanometer, in case, for office use. Price, $15.00.

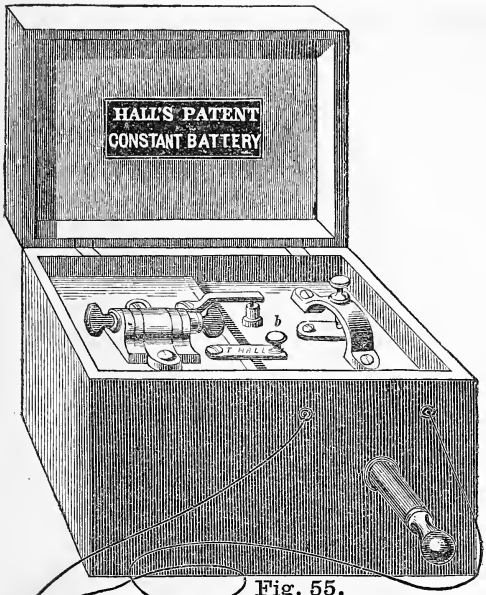


Fig. 55.

Fig. 56.

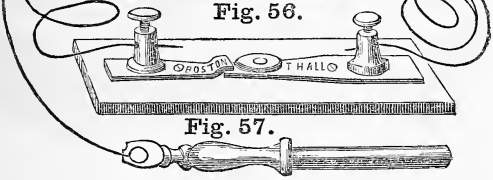


Fig. 57.

Fig. 58.

No. 55. Hall's Patent Constant Battery for Extracting Teeth without pain. Represents the instrument complete in box. Price, $12.00.

No. 56. The forceps, and manner of connecting them with the footboard and handles.

No. 57. Hall's Improved Footboard. This is a break-current footboard. Its operation is exactly opposite to the common arrangement for this purpose. When the foot is on the board, there is no current; the moment the foot is raised, the spring touches the upper connection, and closes the current. By this arrangement the operator is not obliged to stand in one position, but can walk all round the chair, and still have the current on the tooth.

No. 58. German Silver Handles, which the patient holds in the hand. The conducting cord which leads from the footboard to the forceps is forked so that it can be connected with both handles of the forceps, which is sure to make good connection at the ends of the cords. It is fastened by two pieces of rubber. The current is graduated by removing the regulator from the centre of the helix. Care should be taken to insulate the gums and cheek from the forceps, so as to cause the whole of the current to go to the tooth. A slight current is found best to produce the desired effect.

No. 59. Hall's Compound Constant Battery, combining two currents, the primary and secondary. Patented June 21, 1859. Price, $12.00.

For remedial purposes, designed for physicians' and dentists' use, this is a decided improvement over all other instruments for the application of electricity as a therapeutic and anæsthetic agent, as it is constantly ready for operation, and requires no cleaning of the zinc plates as in other batteries. It will remain in action some two or three months without adding new solution. It can be operated with the box closed, thereby preventing the noise of the armature to

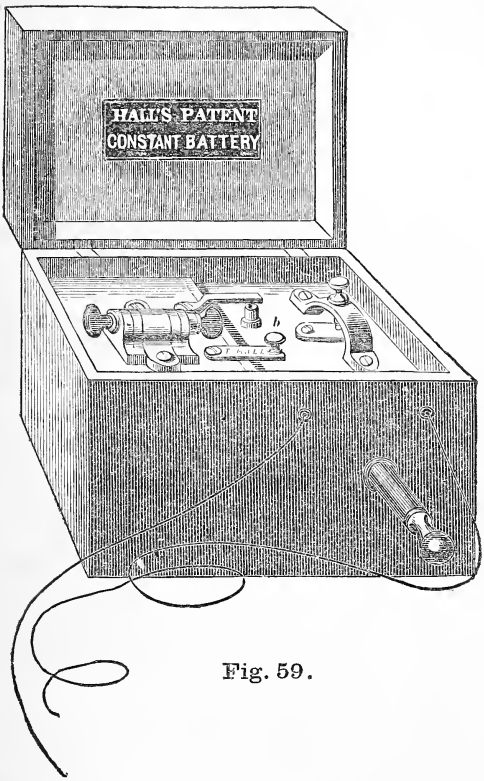


Fig. 59.

escape. It is also portable, and well made in every respect. This instrument is now being used by some of the first physicians and surgeon dentists in the country, who have very kindly permitted me to refer to them in regard to its merits.

This instrument is arranged to produce two currents, the *primary* and *secondary*. Both the currents are combined in the same instrument, and can be brought to bear on the directors by merely moving a lever or switch, without disconnecting the conducting wires. The *primary* current is that which comes direct from the battery through the coarse wire of the helix, consequently is in one direction. When the battery current is made to flow through the body there is at its commencement a greater or less convulsion of the muscles of the part interposed, though its continued passage may be nearly insensible, and is recommended where it is desirable to exercise an organizing power over the muscles, also for various internal diseases.

The *secondary*, or interrupted current, is of high intensity, and of small quantity, and proceeds from the fine wire, (which surrounds the coarse wire,) which is induced from the battery current flowing through the coarse wire, and is used for rheumatic and nervous diseases. This instrument is so constructed that it can be operated with the box shut, thereby preventing the noise from the vibrating armature, and also keeping the instrument free from dust.

This instrument is complete in black walnut boxes, including Hall's India Rubber Flexible Conducting Cords and German Silver Directors. They can be sent by express to any part of the United States or the Canadas.*

Directions. — 1. Raise the zincs out of the box, then fill the glass vessel within one inch and a half of the top with water; then add one ounce (or two table spoonfuls) of common sulphuric acid, replace the zincs in this solution,

* For full directions for operating in different diseases, see Dr. W. F. Channing's Medical Electricity, fifth and enlarged edition, published by Thomas Hall. Price, 75 cents.

connect the brass strap with the brass post opposite, by crowding the pin in the hole, being sure that it makes good contact.

2. Move the lever or switch marked B, on the post opposite; this brings the battery in connection with the instrument, which will instantly vibrate the armature. It is well to give the armature an impulse with the finger if it does not start of its own accord.

Disconnect the battery by removing the switch from the post when not in use, as the zincs are only in action when the lever is on the post.

3. The battery consists of amalgamated zincs and platinum. The zincs are prepared with mercury, being first immersed in a solution of sulphuric acid and water, about one tenth acid to water. This solution thoroughly cleans the zincs, so that the mercury amalgamates with them. It is well to rub the mercury on with a piece of cloth or an old toothbrush. Care should be taken to keep the plates well coated with mercury, as the action of the battery depends greatly on the amalgamation of the zincs.

Do not let the platinum or centre plates touch the zincs, as this would stop the action of the battery. The battery is ready for use, having been amalgamated previous to selling, but it would be as well to reamalgamate them after a week's use, as the mercury does not thoroughly penetrate the zincs the first time amalgamated.

4. Connect the directors to the flexible rubber cords by means of the screws, pass the other ends through the eyelets of the box, and connect them with the screws marked P and N, representing the positive and negative poles of the battery. By this arrangement you can shut the box entirely up, and still operate.

5. If, after using it some time, and the current grows weak and feeble, look at the zinc plates,—if they look black, they need reamalgamating, if they are bright and well coated with mercury, the solution must be at fault. Throw it away and prepare new, and the instrument will operate with renewed vigor.

6. After having seen that the zincs are in order, and the solution being made according to directions, and the instrument still refuses to operate, the fault must be in the vibrating armature, which is placed under the arch of brass; this must be adjusted so that the iron hammer is about a sixteenth of an inch from the face of the magnet, then screw the spiral spring down so as to just touch the flat spring, then tighten the screw by the lower nut, and there will be no difficulty in the instrument's operating.

7. The current is regulated by the brass rod drawn out of the large eyelet hole. When it is entirely out, there is no perceptible current; as you insert the rod, it increases the current until it is entirely in, then the instrument is at its full strength.

8. The manner of bringing the secondary and primary currents to connect with the directors or cords, is done by a switch on the base of the instrument. When the switch is on the knob of brass marked S, you get the secondary current, (which is very powerful;) when on the knob marked P, the positive current is in connection. The different currents are changed in our instrument by merely moving the switch from one knob to the other.

No. 60. Represents the manner of applying electricity to the footbath.

No. 61. Represents the form and construction of the

Fig. 60.

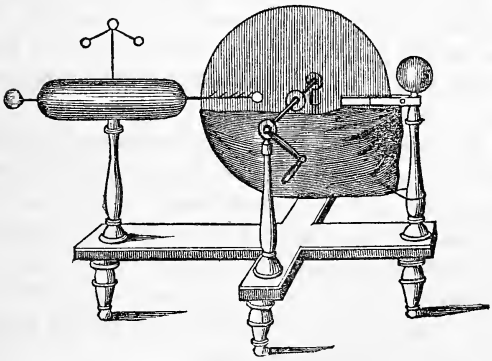


Fig. 61.

mounted plate machines for the production of statical or frictional electricity from a plate 16 by 24 inches in diameter. The base is of mahogany, supporting fonr glass pillars,

mounted with brass bases and caps; the axle of the plate revolves in brass balls on the top of two of the pillars, and the prime conductor and rubber are supported by the other two. The crank is insulated; the conductors are all polished lengthwise, or telescope finish, and there is no difference in the finish of the several sizes.

No. 62. Plate Electrical Machines, of improved construction, perfectly insulated, with glass shaft and brass conductor, of superior finish. Diameter of plate from 20 to 36 inches. Price, $45 to $150.

No. 63. Plate Machine, Brass Mounted, with Glass Pillars, on Mahogany Base, Insulated Crank, and Brass Conductor. Diameter of plate, 16 inches. Price, $25.00.

No. 64. Plate Machine, same style, size 18 in. $30.00.
No. 65. " " " " " 20 " $40.00.
No. 66. " " " " " 22 " $50.00.
No. 67. " " " " " 24 " $60.00.

No. 68. Plate Machine, Brass Mounted, with Positive and Negative Ball Conductors, and additional Brass Prime

Fig. 69.

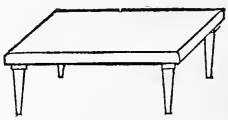


Fig. 70.

Fig. 71.

Conductor on separate stand. Diameter of plate, 24 in.* Price, $80.00.

No. 69. Leyden Jar to receive shock from.

No. 70. Small Stool, with glass legs.

No. 71. Discharger to draw sparks from the body when charged on the stool.

* In the various sizes of machines, great care has been taken to have the mounting of proportionate strength; the sizes of the glass pillars, rubbers, and prime conductors increased to correspond with the size of plate, and to produce the greatest power. The conductors are polished lengthwise, as in the best Paris instruments.

MISCELLANEOUS.

Sulphate of Copper, per pound, 15 cents.
Mercury, " 70 cents.
Sulphuric Acid, "
Nitric Acid, "
Silk Conducting Wires, per pair, 37 cents.
Cotton " " " 25 cents.
India Rubber " " " $1.50.
Golding Bird's Electro-Moxa plates, 75 cents.
Insulated Conducting Wires of every description.
Zincs for various kinds of batteries.
Connecting Cups of various kinds.
Platinum Wire and Foil.
Porous Cells.
Amalgamating Brushes.
Galvanic Soles.
Dr. Garret's Spine Directors.
Galvanic Tubs for Foot Baths.
Batteries and Apparatus for Electro-Chemical Baths.
Improved Instruments and Batteries for Dentists' use. Price, $12.00.

Dr. W. F. Channing's Work on Medical Electricity, fifth edition, enlarged, with seventy original illustrations. $1.00.

Golding Bird's Lectures on Medical Electricity. $1.00.

Hand-Book of Anatomy, with Charts. $5.00.

Davis's Manual of Magnetism.

English, French, and German Scientific Works and Instruments, imported to order.

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"	"	"	Diploma and Gold	"	1856

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No. 10.	Horizontal Compound Electrotome	20.00
No. 11.	Coil in box, with Constant Battery	14.00
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No. 33.	One Quart Battery	2.50
	Two " "	3.50
No. 34.	German Silver Directors for the Hand, per pair	2.00
No. 35.	" " " " " " " "	1.25
No. 36.	Silver Plated Surface Handle, " "	2.00

No. 37.	Sponge Director, ... " "	1.50
No. 38.	Silver Plated Ear Directors, each.....	.75
No. 39.	" " Rectum " "	.75
No. 40.	" " Tongue " "	.75
No. 41.	" " Scalp " "	1.25
No. 42.	Flat Sponge Handle.....	1.25
No. 43.	Womb Director.....	1.25
No. 44.	" " glass.....	1.25
No. 45.	Vagina Director, silver plated.....1.25,	1.50
No. 46.	Dr. Channing's Eye Glass.....	.75
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Every description of Magnetic and Galvanic Instruments manufactured to order, for professors, physicians, teachers, experimenters, and manufacturers. Illustrated catalogue of Electro-Medical Instruments, Philosophical Instruments, and Telegraphic Instruments.

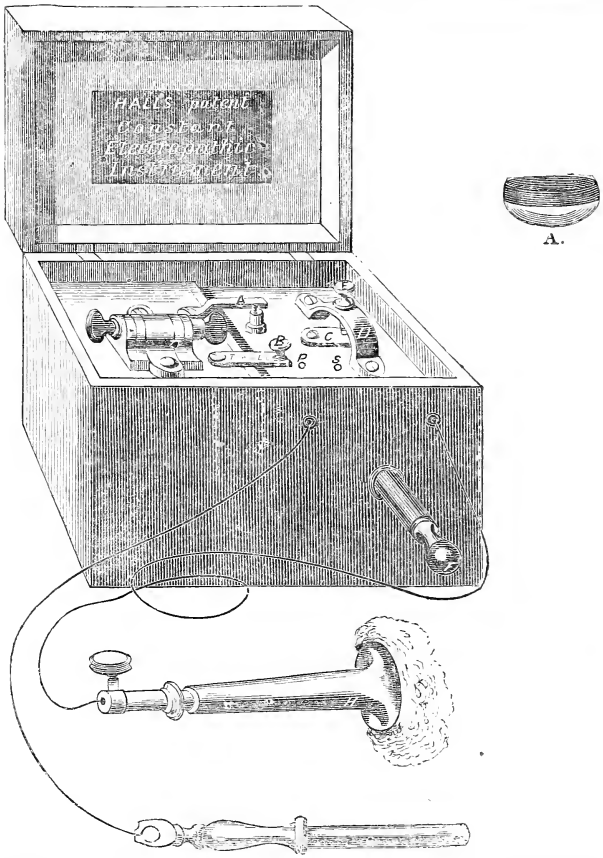

Fig. A represents HALL'S GLASS CASTERS for insulating bedsteads, &c. These consist of pressed glass, about three and one-half inches in diameter, and one and one-half inches thick, with a cavity to allow the feet of the bedstead to rest in. By being smooth on the bottom, they will slide on the carpet much better than the metallic casters. It is found that by insulating the bedstead, and removing it from the walls, so that it will touch nothing but the glass casters, it will remedy that languid feeling that most persons experience on rising in the morning. The theory is that there are electrical currents constantly escaping from the body to the ground; by insulating the bedstead it cannot escape, and consequently the body retains a larger amount of electricity, which is the vital power. They are also used as a protection from lightning. During a thunder shower, if the bedstead is insulated and removed from the walls, so that it does not touch any thing but the glass casters, a person lying on it is perfectly safe. It is the up stroke that generally strikes, and as electricity will always follow the best conductor, the instant it meets the glass it passes along on the floor to the wall and escapes. They not only serve to insulate, but they present a very beautiful appearance in contrast with the furniture and carpet.

PRICE, ONE DOLLAR PER SET OF FOUR.